2012 Construction Workshop

Roadway and Pavement Breakout

Lamar Sylvester, PE

Safety

- Always Our Top Priority
- Review Emphasis Areas
- Following Standards

Erosion Control

New NCG01 Permit

- General Stormwater Permit
- Effective August 3, 2011
  - NCDOT Projects Beginning with January 2012 Let
- Stabilization Requirements
  - Periods of inactivity

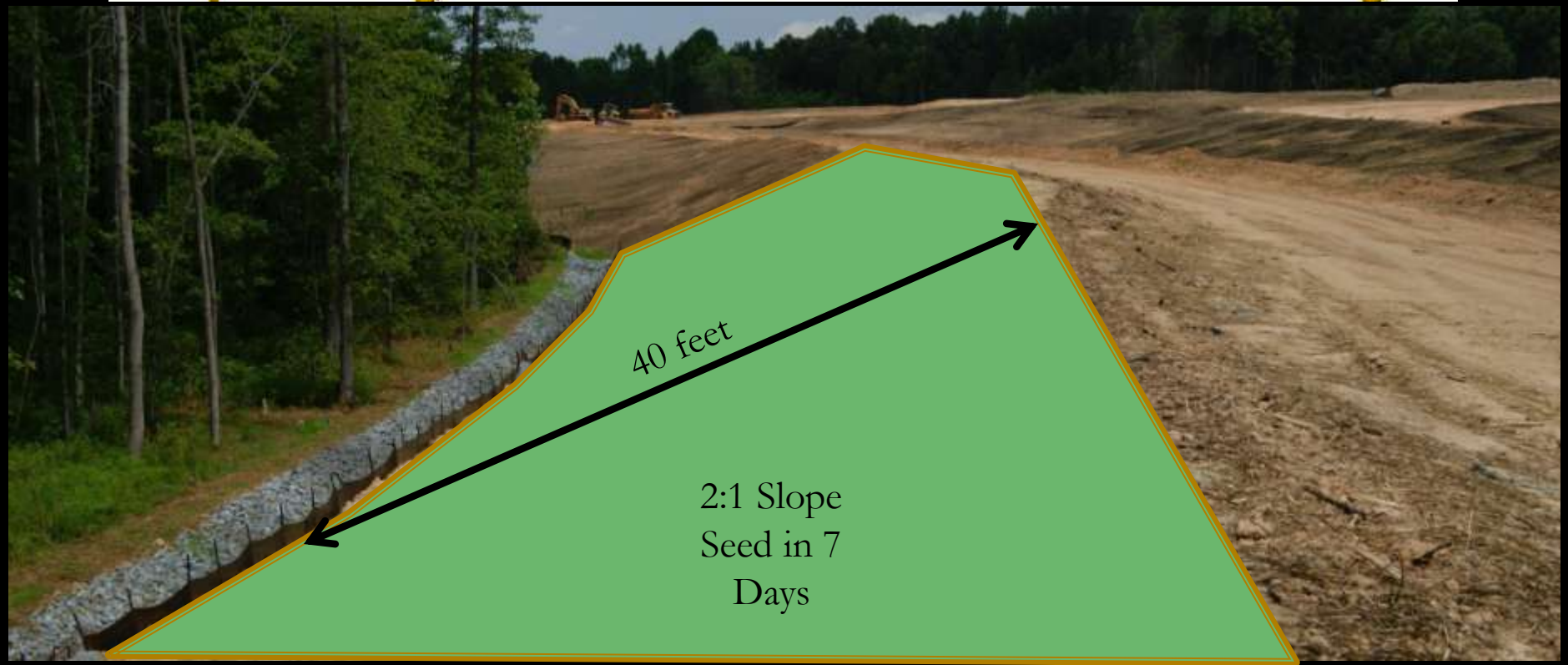
North Carolina Department of Transportation

Stabilization Requirements

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exceptions
Perimeter dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in height and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
All other areas with slopes flatter than 4:1	14 days	None (except for perimeters and HQW Zones)

2011 NCG010000 Permit

Slope Lengths Greater then 10 feet in length

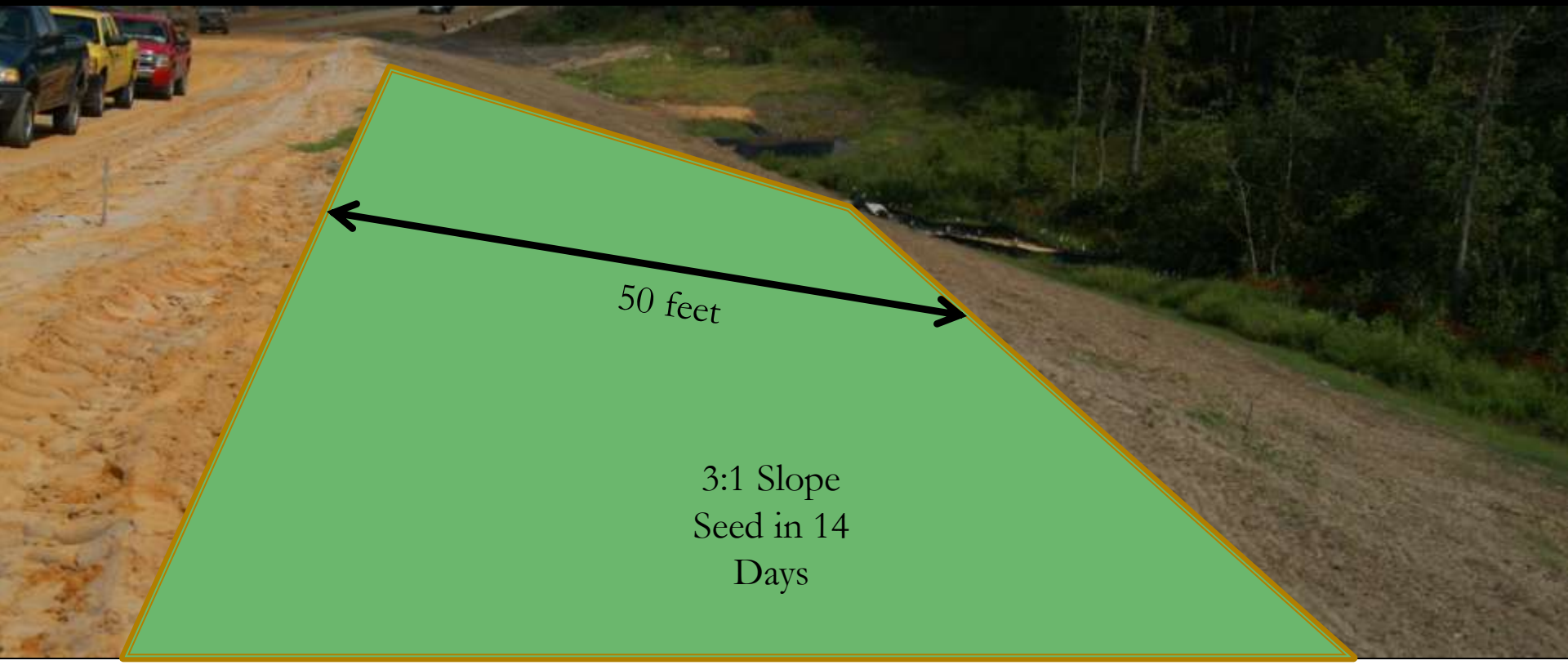


2011 NCG010000 Permit

Slope Lengths less then 10 feet in lengths

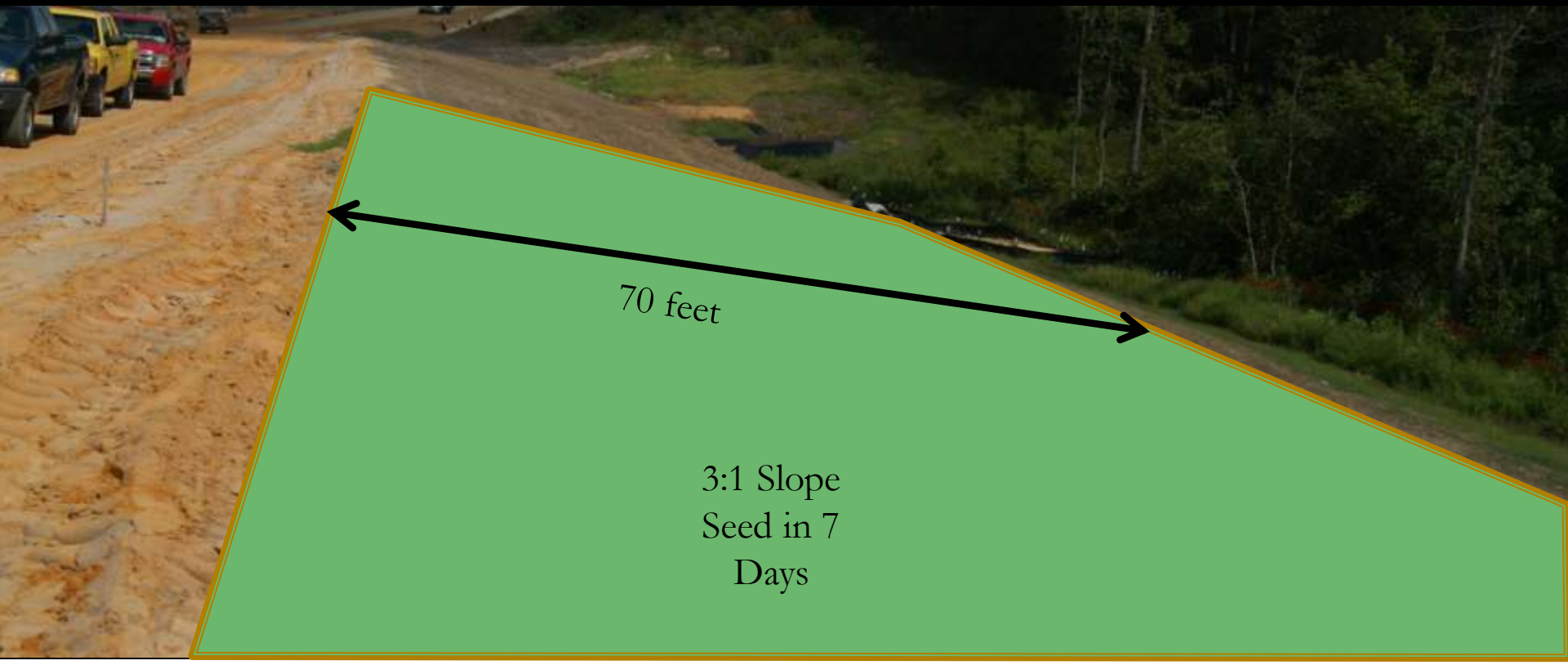
2011 NCG010000 Permit

3:1 Slope Lengths Less then 50 feet in length



2011 NCG010000 Permit

3:1 Slope Lengths Greater then 50 feet in length



2011 NCG010000 Permit

Questions?

Permanent Vegetation Establishment

Effective February 2012 Letting

Project Types

- Centrally Let with EC Plans
- Not Required
  - Resurfacing
  - Bridge Painting
  - Signal
- Division Let
  - Case By Case

Purpose

- **Permanent** Vegetation Establishment
- Federal Contracting Requirements
- Contractor Maintains Responsibility
- Compensation
- **Not an Observation Period**

Requirements

- 80% Permanent Vegetation
  - Condition of Final Acceptance
- Applies to Project Limits, Waste & Borrow Pits
- Compensation
  - Existing Contract Items
  - 104-7 or 104-3

Project Acceptance

- Intermediate Contract Time (ICT 1)
  - All Work Except Vegetation, etc.
- Overall Contract Time
  - From 0 to max of 180 days after ICT
  - As soon as criteria is met
- Can Occur at Same Time
- Roadway/Bridge Engineer Responsible for Final Acceptance

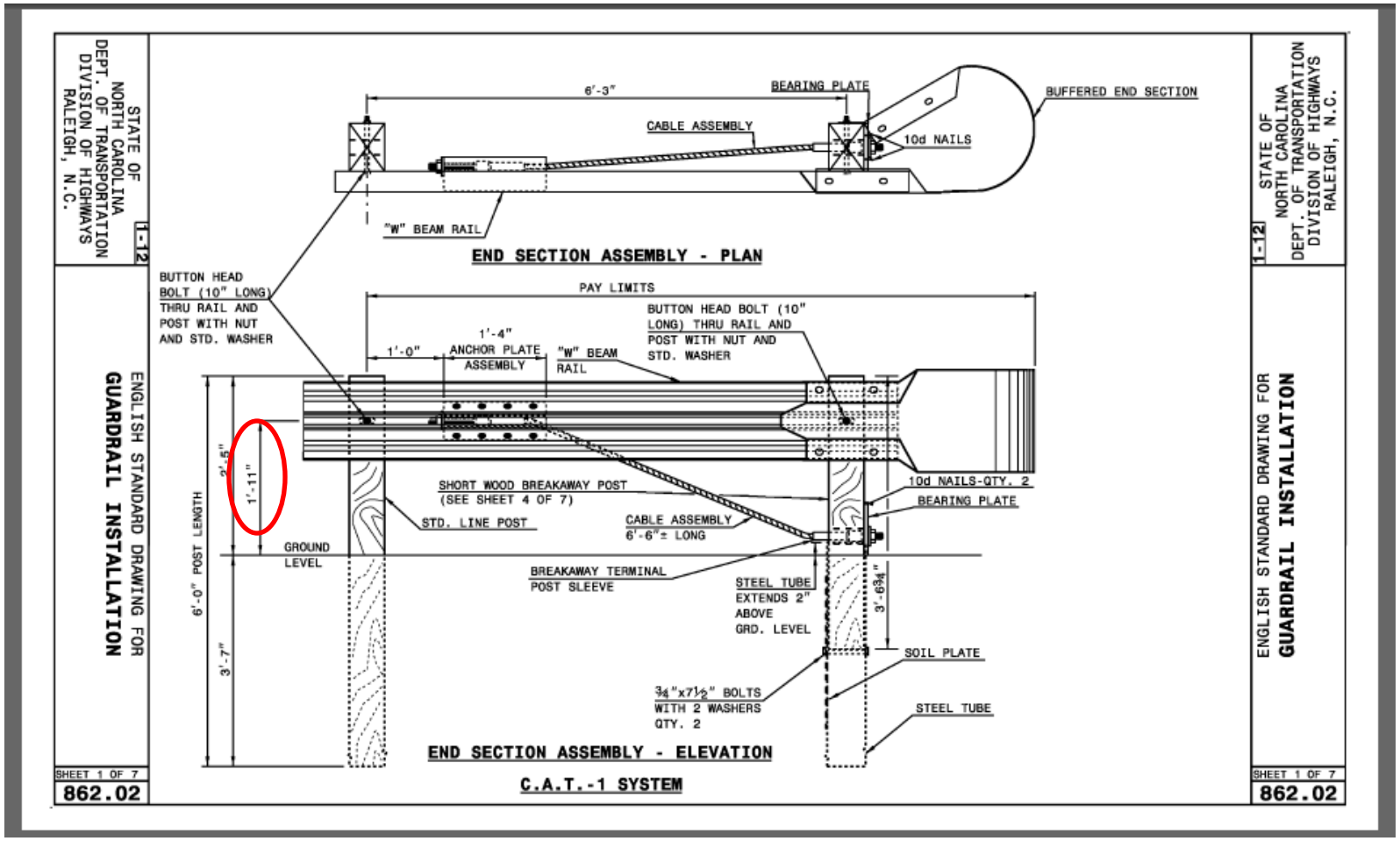
Achieving Desired Results

- Communication
  - CU, REU, RE, Division, Contractor
- Allow Contractor to Perform the Work that is Necessary
  - Water, Top Dressing, Matting, etc.
- Timely Removal of Temporary Devices

Guardrail

- Old Height Requirement
  - 1’- 9”
- New Height Requirement
  - 2012 Standards
  - 1’- 11”

Beginning January 2012 Guardrail height is **1’-11” (23”)**



Portable Concrete Barrier

- NCHRP 350 Barrier Required
  - All Projects Let January 2012
  - Crash Cushions, TMAs
- Old NCHRP 230 Barrier
  - Can Be Used on Projects Let Prior to Jan. 2012
  - Cannot Mix Barrier Types in a "Run" of Barrier

Failing ABC (RA) Samples

- New (2011) Procedures for Investigation
- Investigation Team
  - Review Original Sampling Details
  - Check Sample
- RCE Letter to Resident Engineer
- Resident Engineer Notifies Contractor in Writing

Blasting

Blasting

- New Section of the Specifications (Sect. 220). This replaces Section 107-11.
- The contractor is to provide a blasting plan, blast monitoring and post blast reports as required by the contract.
- When blasts are within 1000’ of any structure the blasting plan and blast monitoring shall meet the requirements of Subarticle 220-3(B) and 220-3(C).

Blasting

- If blasting is necessary, a Blaster-in-Charge is required.
- This person must be prequalified and have 5 years of experience with blasting and will have the authority over the handling and security of the explosives, design, planning, coordinating, supervising, and monitoring of the blast.
- This person is required to be on site during the blast.

Blasting

- **A pre-blast meeting should be scheduled prior to drilling and after a blast plan has been accepted by the Department.**
- **Attendees to this meeting are: The Lead Engineer, Roadway Construction Engineer, Geotechnical Operations Engineer, Project Technician, the Prime Contractor, and the Blaster-in-Charge.**

Questions?

2012 Construction Workshops
Pavement Breakout

Nilesh Surti, PE

State Pavement Construction Engineer

Pavement Breakout - Agenda

- 2012 Specification and QMS Manual changes
- New IRI Specification
- Concrete Pavements
- Tack Coat Application Rates and Temperatures
- Safety Edge

Major Changes in 2012 Specifications and 2012 QMS Manual

- Division 6: Asphalt Pavements (removed 35+ pages)
  - QMS Manual serves as a "Supplemental Specification"
- Sections 609, 610
  - Warm Mix Asphalt (WMA) in Spec. Book
- Section 610-8
  - Expands use of Material Transfer Vehicle (MTV)

Major Changes for 2012 Specifications

- Section 610-13
  - Modifies the final surface testing to
    - Now includes the Inertial Profiler (IRI) and Hearne
- Section 610-14
  - Changes Density pay factor formula

Reduced Pay Factor = $100 + \left[\left(\frac{Actual\ \ Density - Specified\ \ Density}{2} \right) x30 \right]$

Where:

Actual Density = the lot average density, not to exceed 2.0% of the specified density

Specified Density = the density in Table 610-6 or as specified in the contract

New IRI Specification

- **Article 610-13:** Includes Final Surface Testing (previously SP)

Criteria when the FST is NOT required on a project:

1) **The project has less than 2 new lifts of asphalt.**
2) **The speed limit is less than 45 mph.**
3) **The project is less than one mile in length.**
4) **The existing site conditions make it impractical to obtain rideability as determined by the Division**
   (Considerations may include pavement width, traffic phasing constraints, type of facility, and large number of utility adjustments, driveways, or -Y- lines.)

Centrally let projects will include an SP that states:

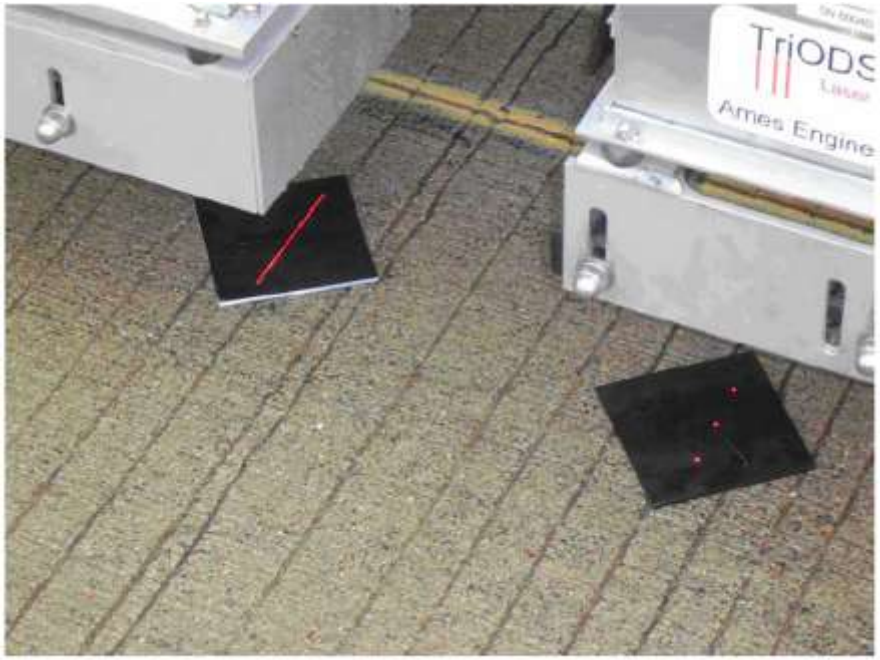
- ***"Final Surface Testing is not required on this project."***

- **Article 710-7:** Includes Final Surface Testing by an Inertial profiler for concrete pavements
- **Article 610-13:** Includes Final Surface Testing by an Inertial profiler or the Hearne Straightedge for asphalt pavements

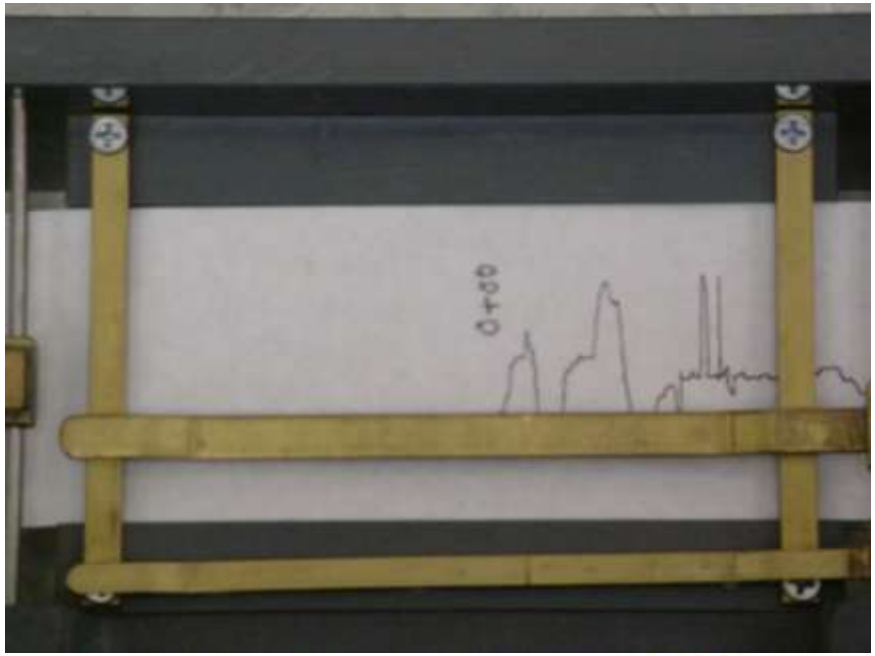
Option 1 - Inertial profiler

Option 2 - Hearne

NCDOT spec requires use of line laser technology



Sensor footprint of the RoLine and TriOD sensors.



NCDOT – IRI Special Provisions details

- IRI = International Roughness Index (inches / mile)
- Contractor buy equipment and performs smoothness testing or hires a Private firm
- In 2010, AASHTO documents on Inertial profilers and systems were updated and finalized
- Need calibrated profiler and trained, competent personnel using the system
- Use low-speed or high-speed profiler
- Run profiler on both wheel paths at same time to determine MRI, avg. of LT and RT values

NCDOT – More details on IRI Special Provision

- Data provided to RE after each run on approved media (CD, DVD, flash drive)
- DOT will analyze raw data on FHWA ProVAL software
- MAY 8th – FHWA ProVAL Workshop in Raleigh

  (1-day Training to use software, bring laptop)
- Each Division can send up to 2 people
- Contractor provides results REPORT - 10 days after completion of initial smoothness testing

Pay Adjustment Chart is same for asphalt or concrete

- Price adjusted based on **MRI numbers per lane**
  - 45.0 or under — PA = $200 per 0.10 mile
  - 45.1 to 55.0 — PA = 600 – (10*MRI)
  - 55.1 to 70.0 — Acceptable (No PA)
  - 70.1 to 90.0 — PA = 650 – (10*MRI)
  - Over 90.1 — Corrective Action Required
- Corrective action must be approved by RE
- Areas of Localized roughness (>125.0 in 25’)

Tack Coat

Application Rates and Temperatures

Tack Coat Issues

- Non-uniform application
- Rates applied at lower end (0.04 g/sy)
- Paving continues prior to tack breaking
- Tack may get overheated in trucks
- Temps not within specs (CRS-1= 90-150 deg F)
- Verification of Approved Producer

Roadway Inspectors responsibilities

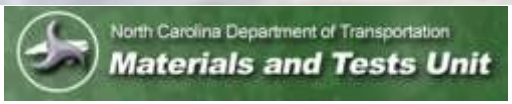
- **RE directs the application rate to Contractor**
  - See guidance from QMS manual
- **Must check uniform application**
  - - Reshoot if there are “corn rows”
- **Check temp. from gauge on distributor truck**
- **Do NOT allow paving until tack breaks**
  - Tack needs to turn from **brown** to **black**

****New Tack Coat SP is being developed.****

QMS Manual Changes

- QMS Certification Expirations
  - QMS Roadway
  - Level I – Plant
  - Level II – Plant
  - Mix Design Technician
- Now Expire on December 31st of the 4th Year
  - Page 1-9

QMS Manual Changes



HMA/QMS Asphalt Technician Training Schedule

2012

NCDOT HMA/QMS Asphalt Technician Training Schedule					2012											
Courses	**Location**	**City**	**Begin Time**	**Capacity**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Level II Plant Technician Class	Salon 1 & 2, City Hotel and Bistro	Greenville	8:30 AM	25	11-12											
Roadway Technician Class	Salon 1 & 2, City Hotel and Bistro	Greenville	8:30 AM	60	24-25											
Level II Plant Technician Class	Wake Forest Room, Ramada Inn	Burlington	8:30 AM	25		8-9										
Roadway Technician Class	Wake Forest Room, Ramada Inn	Burlington	8:30 AM	60		22-23										
Level II Plant Technician Class	Galleria III & IV, Holiday Inn - Biltmore West	Asheville	8:30 AM	25			7-8									
Roadway Technician Class	Galleria III & IV, Holiday Inn - Biltmore West	Asheville	8:30 AM	60			21-22									
Roadway Technician Class	NCSU - McKimmon Center	Raleigh	8:30 AM	60				3-4								
Level I Plant Technician Class	Wake Forest Room, Ramada Inn	Burlington	8:30 AM	30				11-12								
Roadway Technician Class	Village Inn	Clemmons, NC	8:30 AM	50				25-26								
** Added Class																
Last Revised:																
1/31/2012																
x = Confirmed																

FHWA “Safety Edge”

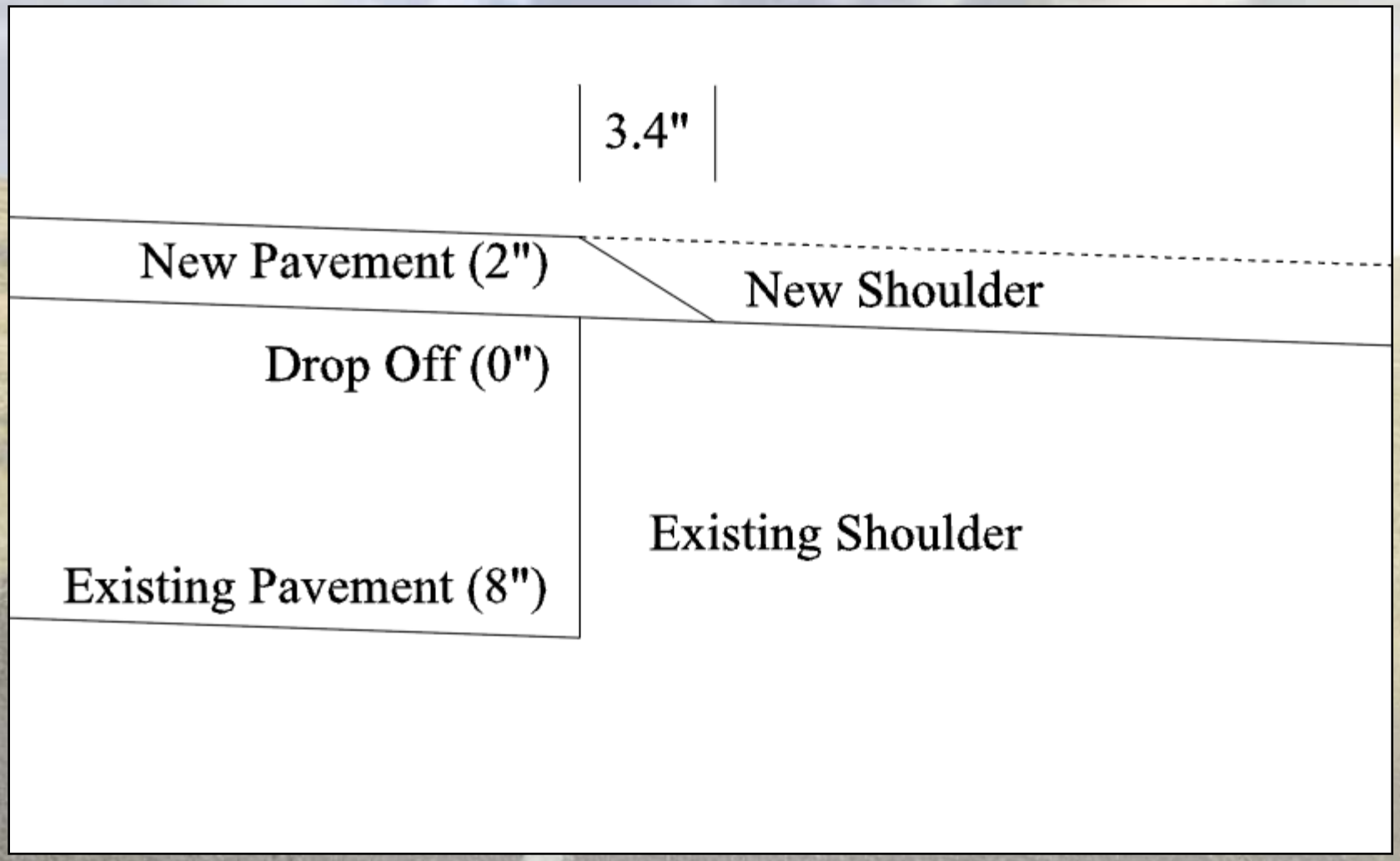
- NCDOT has a Shoulder Wedge SP
- Asphalt wedge beyond EOP to help drop-offs
- Contractors need to obtain a “shoe”

Johnston County Pilot Project

- Safety Edge Angle should be 30 degrees

Recommended Detail for Safety Edge

Wedge should begin at EOP so cross-sectional width remains same



Questions ?

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